Understanding the Limit Homework Name _____

Problems 1 – 4, complete the table and use the result to estimate the limit. Graph the function and verify your result.

1. $\lim_{x \to 2} \frac{x-2}{2x^2-9x+10}$

| $x$ | 1.99 | 1.999 | 2 | 2.001 | 2.01 |
|---|---|---|---|---|---|
| $f(x)$ | | | | | |

2. $\lim_{x \to 0} \frac{\sin x}{x}$

| $x$ | $-0.01$ | $-0.001$ | 0 | 0.001 | 0.01 |
|---|---|---|---|---|---|
| $f(x)$ | | | | | |

3. $\lim_{x \to 4} \frac{x^2-16}{x-4}$

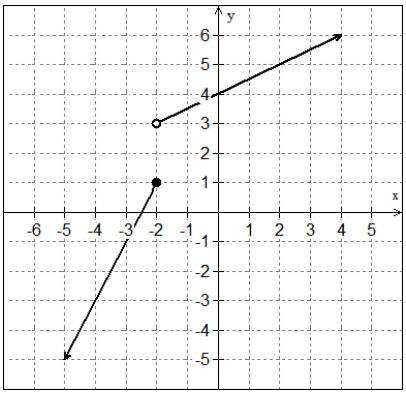
| $x$ | 3.99 | 3.999 | 4 | 4.001 | 4.01 |
|---|---|---|---|---|---|
| $f(x)$ | | | | | |

4. $\lim_{x \to 3} \frac{\sqrt{x+1}-2}{x-3}$

| $x$ | 2.99 | 2.999 | 3 | 3.001 | 3.01 |
|---|---|---|---|---|---|
| $f(x)$ | | | | | |

Problems 5 - 9, use the graph to find the limit (if it exists). If the limit does not exist, explain why.

5.




A. $\lim_{x \to 0} f(x)$

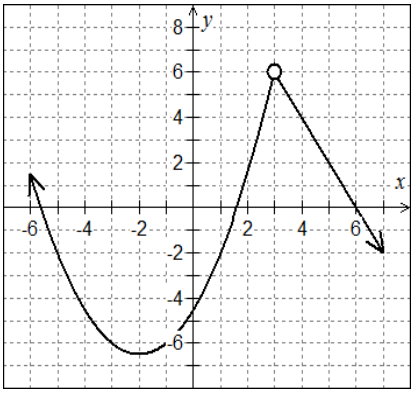
B. $\lim_{x \to -4} f(x)$

C. $\lim_{x \to -2^-} f(x)$

D. $\lim_{x \to -2^+} f(x)$

E. Does $\lim_{x \to -2} f(x)$ exist? Why or why not?

6.




A. $\lim_{x \to -3} f(x)$

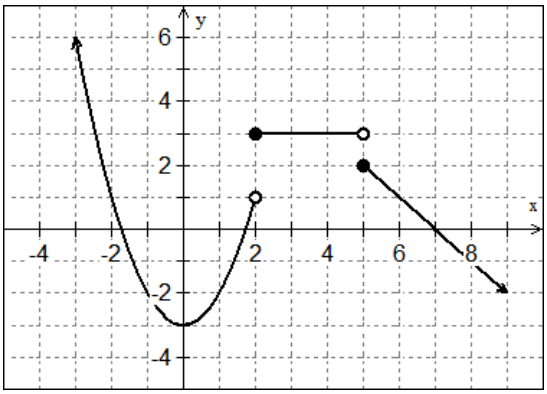
B. $\lim_{x \to -\infty} f(x)$

C. $\lim_{x \to 6} f(x)$

D. $\lim_{x \to 1} f(x)$

E. Does $\lim_{x \to 3} f(x)$ exist? Why or why not?

7.




A. $\lim_{x\to 0} f(x)$

B. $\lim_{x\to 2^-} f(x)$

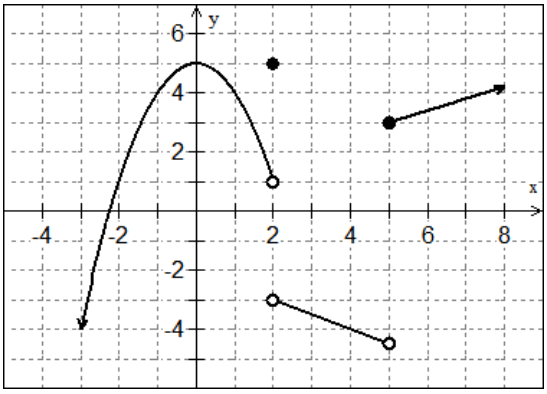
C. $\lim_{x\to 4} f(x)$

D. $\lim_{x\to 5} f(x)$

E. $\lim_{x\to -\infty} f(x)$

F. $\lim_{x\to 7} f(x)$

8.




A. $\lim_{x\to 5^-} f(x)$

B. $\lim_{x\to 2} f(x)$

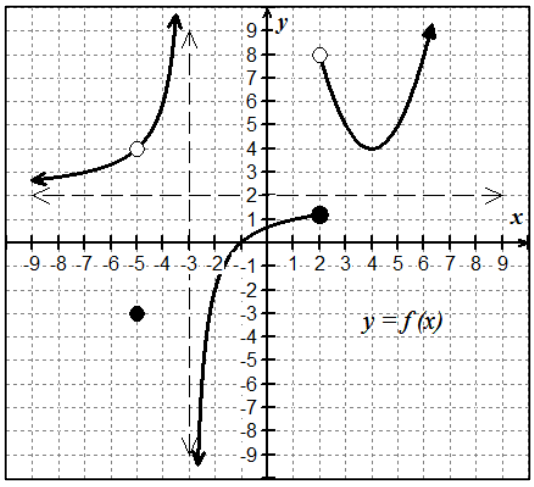
C. $\lim_{x\to 0} f(x)$

D. $\lim_{x\to \infty} f(x)$

E. $\lim_{x\to 4} f(x)$

F. $\lim_{x\to 2^+} f(x)$

9.




A. $\lim_{x\to -3^-} f(x)$

B. $\lim_{x\to -3^+} f(x)$

C. $\lim_{x\to 2^-} f(x)$

D.) $\lim_{x\to 2^+} f(x)$

E.) $\lim_{x\to \infty} f(x)$

F.) $\lim_{x\to -\infty} f(x)$

G.) $\lim_{x\to -3} f(x)$

H.) $\lim_{x\to 2} f(x)$